

THE GENUS *EUPAGIOCERUS* BLANDFORD¹ (SCOLYTIDAE: COLEOPTERA)

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A recent opportunity to study the habits of three species of *Eupagiocerus* Blandford in Central America makes possible the illumination of the biology of this genus for the first time. Two previously undescribed species are also added to the two previously known in the genus. New synonymy for one species is included.

Eupagiocerus Blandford

Eupagiocerus Blandford, 1896, Biol. Centr.-Amer. 4(6):133.

Nemopagiocerus Schedl, 1962, Mitt. Münchner Ent. Gesellsch. 52:85
(new synonymy).

On the basis of the antennal characters, the entire eye, and the tuft of pleural hair on the prothorax, Schedl (1962:85) erected the genus *Nemopagiocerus* for his *Eupagiocerus nevermanni*. This species and the two described below as new were studied in the field, and all three species were compared to the type of *dentipes* Blandford. All three species breed in the pith of woody vines where they have habits that fall well within the limits of the closely allied genus *Cnesinus*. Since those species of *Cnesinus* associated with ambrosial fungi may also have a pleural tuft of setae on the prothorax similar to that of Schedl's *nevermanni*, while those not associated with fungi lack this character, its presence or absence should have no generic significance. The strongly procurved sutures of the antennal club in *clarus*, while more nearly like Schedl's species, are intermediate between *nevermanni* and *dentipes* Blandford. The inner margin of the eye in Schedl's species varies from entire to sinuate, and in *clarus*, *dentipes* and *vastus* from rather strongly sinuate to shallowly emarginate. In view of the small number of species involved and the variability of characters it appears that *Nemopagiocerus* Schedl represents only an unusual form of *Eupagiocerus* Blandford and should be placed in synonymy under the latter name.

KEY TO THE SPECIES OF *Eupagiocerus*

1. Sutures one and two of antennal club strongly procurved, with two extending at least to middle of club; second declivital interspace impressed or at least less strongly elevated than either one or three and, except at upper margin, devoid of tubercles 2

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- Sutures one and two antennal club moderately procurved, with two not extending beyond basal third of club; declivital interspaces equally convex and each bearing a single row of rounded tubercles 3
2. Smaller, 2.1-2.6 mm.; discal interspaces strongly convex posteriorly, almost as high as wide at upper margin of declivity, each elevation ending posteriorly as a small sharply pointed spine, a row of similar pointed tubercles continuing down each declivital interspaces (except two); Costa Rica to Venezuela and Peru *ater*
- Larger 2.6-3.0 mm.; discal interspaces moderately convex, not ending abruptly posteriorly; second declivital interspace and perhaps lower part of third, somewhat impressed or flat and devoid of tubercles; declivital tubercles small, rounded; Panama *clarus*
3. Elytral striae narrowly impressed, the punctures obscure; interspaces smooth and shining; declivital granules more sparsely placed, the vestiture fine, hairlike; pronotal punctures smaller and more closely placed; type 2.8 mm.; Guatemala *dentipes*
- Elytral striae feebly impressed on disc, rather strongly at base of declivity, the punctures almost obliterated; interspaces finely reticulate, dull; declivital granules more numerous, the vestiture stout, almost scalelike; pronotal punctures larger, close, but less crowded; 3.0-3.8 mm.; Costa Rica *vastus*

Eupagiocerus ater Eggers

Eupagiocerus ater Eggers, 1931, Ent. Blätt. 27:14 (Venezuela).

Eupagiocerus nevermanni Schedl, 1952, Dusenja 3:350 (Costa Rica) (new synonymy).

Eupagiocerus serratus Wood, 1961, Gt. Basin Nat. 21:104 (Panama) (new synonymy).

Nemopagiocerus nevermanni, Schedl, 1962, Mitt Münchner Ent. Gesellsch. 52:85.

The type of *ater* Eggers (in the Berlin Zoological Museum) was compared by Dr. K. E. Schedl to *nevermanni* Schedl (type?) and to one of my specimens collected Dec. 22, 1963 at Fort Clayton, Panama Canal Zone. According to Schedl (letter dated May 10, 1965) minor differences are apparent in the three specimens, but only one species is represented. The Panama specimen also agrees in all essential characters to the paratype of *serratus* Wood.

A series of this species was collected with the above mentioned Panama specimen from a common vine of the genus *Serjania*. From

the entrance hole in a stem 2 cm. in diameter, the tunnels extended directly to the central axis of pith, then extended about one to three centimeters in either direction. The older mines contained larvae in the parental gallery. On the walls of the tunnel grew a thick mat of white cottony fungus mycelium upon which the larvae fed. This fungus could not be seen in galleries that contained only eggs. Additional larval excavations were not apparent.

Eupagiocerus clarus, n. sp.

This species is allied to *ater* Eggers, but is readily distinguished by the larger size, by the more slender body form, by characters of the elytral declivity indicated in the above key, and by other features of the frons and prothorax.

FEMALE.—Length 3.0 mm. (paratypes 2.6-3.0 mm.); 2.3 times as long as wide; body color black.

Frons broadly, evenly convex above and broadly, shallowly concave below level of eye emarginations, the abrupt line of separation extended forward slightly in median area; upper area reticulate, dull below, subshining above; lower areas shallowly, evenly concave between subacute lateral margins to epistomal margin; epistomal margin slightly raised, shining, with a small bilobed process; concave area rather densely, minutely pilose; other vestiture inconspicuous. Eye 2.6 times as long as wide, shallowly emarginate on upper half, depth of deepest point of emargination about equal to diameters of two facets. Antennal scape bearing several coarse setae, evidently shorter than the 7-segmented funicle; club 1.8 times as long as wide, the sutures strongly procurved, one extending to a point one-third length of club from base, two extending three-fifths of club length from base.

Pronotum 1.1 times as wide as long, sides almost straight and parallel on basal half then abruptly narrowed to the broadly rounded anterior margin; surface closely, finely, longitudinally strigose over entire dorsal surface; subshining; glabrous. Hairlike setae in anterior pleural area longer and conspicuous, but not forming a definite tuft as in *ater*.

Elytra 1.4 times as wide as long, sides feebly curved, somewhat narrowly rounded behind; basal margins slightly raised, neither crenulate nor acutely produced; striae narrowly, rather deeply impressed, the punctures very obscurely indicated; interstriae feebly convex anteriorly, moderately so at base of declivity, about three times as wide as striae, the surface reticulate, subshining and with numerous confused, small, shallow punctures. Declivity moderately steep, somewhat flattened between third interspaces; interspace one slightly elevated, uniseriately punctured, with a few punctures bearing small rounded granules, two flat, appearing impressed, with confused fine punctures, three and four convex on upper half and bearing regular rounded tubercles on the convex portion, becoming flattened on lower half and merging into impression of two, five to

nine convex and each bearing a row of rounded tubercles. Vestiture scanty, restricted to a few hairlike setae in posterolateral area.

MALE.— Similar to female except frons with transition from convex to concave areas gradual, the concavity slightly deeper, not pilose, but with a continuous tuftlike row of erect plumose setae on lateral and lower margins, the concave area with rather numerous small hairlike setae.

TYPE LOCALITY.— Rio Viejo, Volcan Chiriqui, Panama.

TYPE MATERIAL.— The female holotype, male allotype and 32 paratypes were collected at the type locality on January 11, 1964, at an elevation of 5500 ft., by S. L. Wood. They were taken from the central axis of a rough-barked vine in stems 2 cm. in diameter or less. The tunnels were similar to those of *vastus*; there was no evidence of an ambrosial fungus.

The holotype, allotype and some paratypes are in my collection; other paratypes are in the U. S. National Museum and in the British Museum (Natural History).

Eupagioceurs vastus, n. sp.

This species is closely allied to *dentipes* Blandford, but is readily separated by characters summarized in the above key.

FEMALE.— Length 3.7 mm. (paratypes 3.0-3.8); 2.1 times as long as wide; color rather dark brown.

Frons flattened on lower half, feebly convex above, with median third remarkably sculptured; lower half with lateral margins acute and slightly elevated, a narrow marginal and epistomal area irregularly punctured, this area marked dorsally by a transversely elevated low median carina on median third; remaining area of lower half densely pilose; pilose area terminated above by a deep, narrow ventrally procurved groove on slightly more than median third. above the groove a median subhexagonal impunctate area densely very closely reticulate-granulate, a shallow transverse groove near lower margin of hexagonal area; lateral pubescence and median hexagonal area extended to upper level of eyes; dorsal areas head subreticulate and finely shallowly punctured. Eye elongate, shallowly sinuate on inner margin. Antennal scape elongate, about as long as 7-segmented funicle; club narrowly ovate, 1.4 times longer than funicle with two sutures, the first reaching one-fifth of length from base, broadly procurved, the second narrowly, subagnulately procurved reaching two-fifths of length of club from base.

Pronotum very slightly wider than long, base bisinuate, sides on basal half straight diverging anteriorly then narrowed abruptly to a constriction just in front of anterior margin. anterior margin very broadly rounded, submarginate at middle; surface dull, rather closely marked by moderately large elongate punctures, each about twice as long as wide, the punctures much smaller anteriorly and laterally; glabrous. Lateral margins acute on basal two-thirds, pleural areas rather coarsely punctured.

Elytra 1.3 times as long as wide, about 1.3 times as long as pronotum; sides almost straight and parallel on basal half, rather narrowly rounded behind; basal margins bisinuate, slightly elevated, not at all crenulate; scutellum small, round; striae very feebly impressed on disc, somewhat more strongly toward declivity, the punctures, indicated but very feebly impressed; interstriae more than twice as wide as striae, almost flat anteriorly, weakly convex at base of declivity, surface dull, densely, microscopically punctured (visible at a magnification of 80 diameters) and also finely closely, confusedly punctured, with about 4 to 6 punctures across the width of an interspace. Declivity moderately steep, convex, the surface (including strial area) closely reticulate-granulate, each interspace bearing a median row of small but high, rounded granules, each granule as high as wide and spaced by distances about equal to distance between rows of granules. Vestiture, consisting of rows of erect bristles, each arising from base of a granule, and forming a median row on each interspace, each bristle almost as long as distance between rows; and irregular rows of shorter bristles about half as long as median ones, located on each side of median row. Ninth interspace subacutely elevated.

MALE.—Frons subconcavely impressed on lower half and densely pilose in impressed area, the special sculpturing absent, otherwise similar to female.

TYPE LOCALITY.—Puerto Viejo, Heredia Province, Costa Rica.

TYPE MATERIAL.—The female holotype, male allotype and 51 paratypes were collected at the type locality on March 12, 1964, from an unknown woody vine 4 to 5 cm. in diameter, by S. L. Wood. From the entrance tunnel the adult beetles constructed linear galleries along the central axis of pith about 2 to 4 cm. The larvae and young adults then extended these somewhat. There was no evidence of fungal growth in the tunnels.

The holotype, allotype and some paratypes are in my collection; other paratypes are in the U. S. National Museum and in the British Museum (Natural History).